What is claimed is:

1. A positioning controller comprising:

a gear mechanism including a rotating gear for positioning a movable member;

a brushless motor to drive the rotating gear; and

a motor control circuit to rotate a rotor of the brushless motor by sequentially supplying a driving pulse to a plurality of fixed coils of the brushless motor;

wherein the motor control circuit comprises:

present stage number detecting means to detect a present stage number of the movable member in accordance with an output signal from a magneto-sensitive device of the brushless motor, and

driving pulse generating means to generate the driving pulse to rotate the rotor until a target stage number converted from a specified position of the movable member is equal to the present stage number.

2. The positioning controller according to claim 1, wherein the driving pulse generating means has initialization means to detect a stroke limit stage number in advance which corresponds to at least one of a forward traveling limit or a backward travelling limit within a movable range of the movable member, and driving stop means to stop generating the driving pulse when the present stage number surpasses the stroke limit stage number.

3. The positioning controller according to claim 2, wherein the present stage number detecting means sets the stroke

limit stage number as a datum position used for calculating the present stage number.

4. The positioning controller according to claim 1, wherein the gear mechanism has at least one stopper to define a movable range of the movable member, and the driving pulse generating means has datum position setting means to detect a forward traveling limit or a backward traveling limit within the movable range, such that the present stage number detecting means sets the forward traveling limit or the backward traveling limit as a datum position used for calculating the present stage number.

5. The positioning controller according to claim 1, wherein the magneto-sensitive device is a hall sensor.

6. The positioning controller according to claim 1, wherein at least three magneto-sensitive device are provided around the brushless motor.

7. The positioning controller according to claim 1, wherein the movable member is a gear ratio determining member of an automatic transmission of a vehicle.

8. The positioning controller according to claim 1, wherein the stage number increments when the rotor turns through 60 degrees.

9. A positioning controller comprising:

a gear mechanism including a rotating gear for positioning a movable member;

a brushless motor to drive the rotating gear; and

a motor control circuit to rotate a rotor of the brushless

motor by sequentially supplying a driving pulse to a plurality of fixed coils of the brushless motor;

wherein the motor control circuit comprises:

a present stage number detector to detect a present stage number of the movable member in accordance with an output signal from a magneto-sensitive device of the brushless motor, and

a driving pulse generator to generate the driving pulse to rotate the rotor until a target stage number converted from a specified position of the movable member is equal to the present stage number.

10. The positioning controller according to claim 9, wherein the driving pulse generator has an initialiser to detect a stroke limit stage number in advance which corresponds to at least one of a forward traveling limit or a backward travelling limit within a movable range of the movable member, and a driving stopper to stop generating the driving pulse when the present stage number surpasses the stroke limit stage number.

11. The positioning controller according to claim 10, wherein the present stage number detector sets the stroke limit stage number as a datum position used for calculating the present stage number.

12. The positioning controller according to claim 9, wherein the gear mechanism has at least one stopper to define a movable range of the movable member, and the driving pulse generator has a datum position setter to detect a forward traveling limit or a backward traveling limit within the movable range, such that the present stage number detector sets the

forward traveling limit or the backward traveling limit as a datum position used for calculating the present stage number.

13. The positioning controller according to claim 9, wherein the magneto-sensitive device is a hall sensor.

14. The positioning controller according to claim 9, wherein at least three magneto-sensitive device are provided around the brushless motor.

15. The positioning controller according to claim 9, wherein the movable member is a gear ratio determining member of an automatic transmission of a vehicle.

16. The positioning controller according to claim 9, wherein the stage number increments when the rotor turns through 60 degrees.